

Descriptions of two new species of *Amanella*, and a new record of *Tabanus minuscularius* Austin (Diptera: Tabanidae)

by

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SYNOPSIS

Descriptions and illustrations are given of two species of *Cydistomyia* Taylor, subgenus *Amanella* Oldroyd, viz. *zimbiti* n. sp. and *shaka* n. sp., both occurring in Natal. The discovery of an apparently isolated population of *Tabanus minuscularius* Austen in Natal is recorded.

Genus *Cydistomyia* Taylor

Subgenus *Amanella* Oldroyd

Amanella Oldroyd, 1954, *Horseflies Ethiop. Reg.* 2: 75.

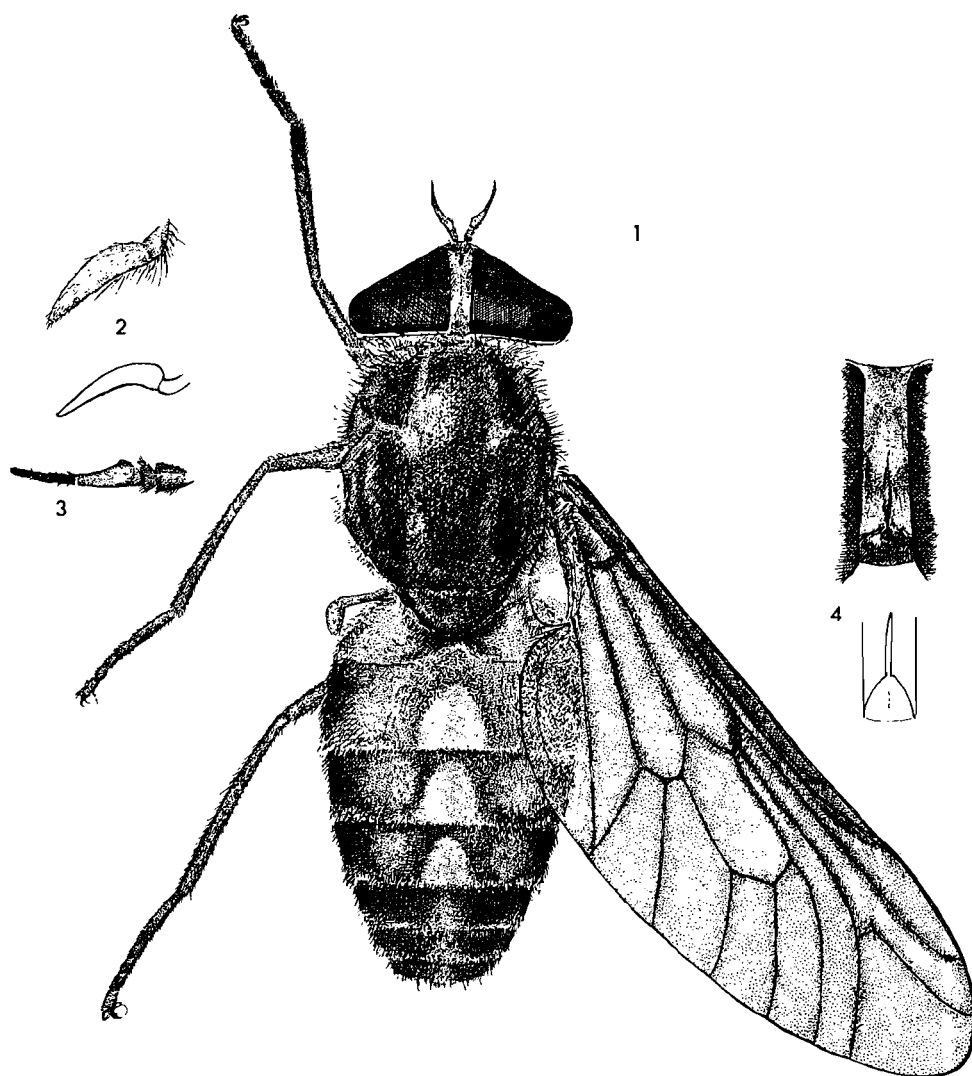
Cydistomyia (*Amanella*) *zimbiti* n. sp.

In colouring this species is most like *pondo* Oldroyd, but it is very much larger and more robust. In fact it would appear to be quite the largest and most thickset of the species of *Amanella*. The only species I have seen which is at all comparable in size is *cooksoni* Usher from Rhodesia, and even of this most specimens are smaller.

The lack of a groove on the palpi, the shape of the calli, the patterned wings and the habitat would seem to ally *zimbiti* to the woodland species of Natal and Pondoland. Although the colouring is like that of *pondo*, the shape of the head, palpi and frons is different. The species is larger and paler than the almost black *medialis* Oldroyd and cannot be mistaken for the smaller, more slender and also darker *ingridina* Usher.

Female (fig. 1)

Head. Eyes in dried specimen dark brown, but in living specimen blackish with shimmering green and purple sheen, without bands. Frons (fig. 4) fairly narrow, slightly divergent as in figure. Lower callus meeting eye margins; it may be almost square with curved upper margin, or subtriangular, shallowly grooved medially; colour shining light orange-brown with rugose surface. Upper callus linear. Ocellar area slightly raised, thinly brown tomented; there may be one or even three minute, vestigial ocelli. Tomentum of frons brown and ashy grey in varying amounts, brown at vertex, along eye margins and in a bar across frons, isolating grey patch around tip of upper callus to ocellar area, and another around union of upper and lower calli; hairs short black, proclinate, increasing in length towards lower callus. Subcallus yellow-brown, inflated, shining, without tomentum. Parafacials and buccae



Figs. 1-4. *Cydistomyia (Amanella) zimbati* n. sp. Holotype ♀; (1) in dorsal view; (2) palp; (3) antenna; (4) frons.

greyish-white. Hairs dark on dark area, otherwise mixed black and white, the amounts varying among the specimens but white hairs predominate with some black ones below the lower eye margin. Face greyish-white with some yellowish ground colour showing through, hairs mostly white, with an occasional black one. *Palpi* (fig. 2) yellowish with some greyish-white tomentum, first segment sometimes more brownish than second, with long white hairs; second segment with mostly long white hairs and a few short black ones, tip darkened by a cluster of the latter, yellowish in colour and the surface pitted at the hair bases. The

shape of the second segment is variable, it may be elongate banana shaped, or may be thickened at the basal third, tapering towards the tip. *Antennae* (fig. 3): First segment subtriangular, moderately long, brown with some sparse yellow-brown tomentum, subshining, hairs mostly short black, quite numerous, longer ones beneath. Second segment small and short, of the same colour with short thick black hairs. Third segment elongate, with low but distinct dorsal angle, bright but dark brownish-orange, blackened just at tip. Terminal segments velvety, dull black-brown, not sooty. Proboscis not longer than palpi, black-brown.

Thorax. Mesonotum subshining sepia-brown with sparse brownish-yellow tomentum. Silver-grey tomentum on indistinct lateral and sublateral stripes, some on lateral borders and quite thick silvery tomentum behind the head. Sublateral stripes most distinct just behind the head, in triangles or spots behind transverse suture and anterior to scutellum where they are broad but not well defined. Notopleural callus with dull, yellowish-brown tomentum and numerous long black hairs on outer edge and some pale hairs anteriorly. Hairs on mesonotum otherwise longest and semi-erect anteriorly on silver area, becoming shorter and recumbent posteriorly, in colour pale yellowish-white but there are some isolated erect black hairs. Pleura yellow-brown and grey, darkened on lower parts of pleurites, with dull yellow tomentum and long yellowish-white shining hairs.

Legs. Fore coxae inflated with greyish-white, pearly tomentum, tinged in places with bronze-brown, but the general appearance is yellowish on account of the ground colour showing through. Hairs long, dull white basally, shorter, shining yellowish apically, with a few black thicker hairs; coxae are darkened at extreme apices. Second coxae more brownish, hind coxae darker altogether with some blackish ground colour shining through. Hairs on both long, shining yellowish-white. Fore femora orange-brown with long pale hairs basally, some stiff erect long black ones on upper surface, short black ones along lower surface and at apex which is narrowly darkened at joint; there is only very thin yellowish tomentum. Second femora also orange-brown but with more yellowish tomentum and therefore appearing paler, hairs long, yellowish-white, shining, a few black on slightly darkened apices. Hind femora darker brown in some specimens, or may be as in mid femora, with yellowish tomentum, short, shining yellowish-white hairs on upper surface and long fine ones below. Fore tibia much as femora, but approximately $\frac{1}{8}$ of apex darkened, hairs mostly pale on lighter areas, dark on dark areas, with some longer erect black ones. Mid and hind tibiae similarly coloured, the former with longer pale hairs, the hind with more dark, especially on hind surfaces. Fore tarsi darkest, basal joints black-brown, others only slightly paler basally with sooty apices, hairs black, claws black, pulvilli yellow-brown. Mid and hind tarsi lighter, more orange-brown, with darkened apices to segments, hairs and claws black, pulvilli yellow-brown.

Wings. Membrane smoky, veins infuscated, appendix to R_4 of varying length, veins very dark brown. Haltere, yellowish becoming browner towards knob, knob black-brown but yellow narrowly around outer edge.

Abdomen. The females in the collection all have the abdomen very thick basally, tapering to the down-curved tip. It is possible that they are all ovigerous, but the shape does seem different to that of other members of the genus. Tergites yellow-brown darkening

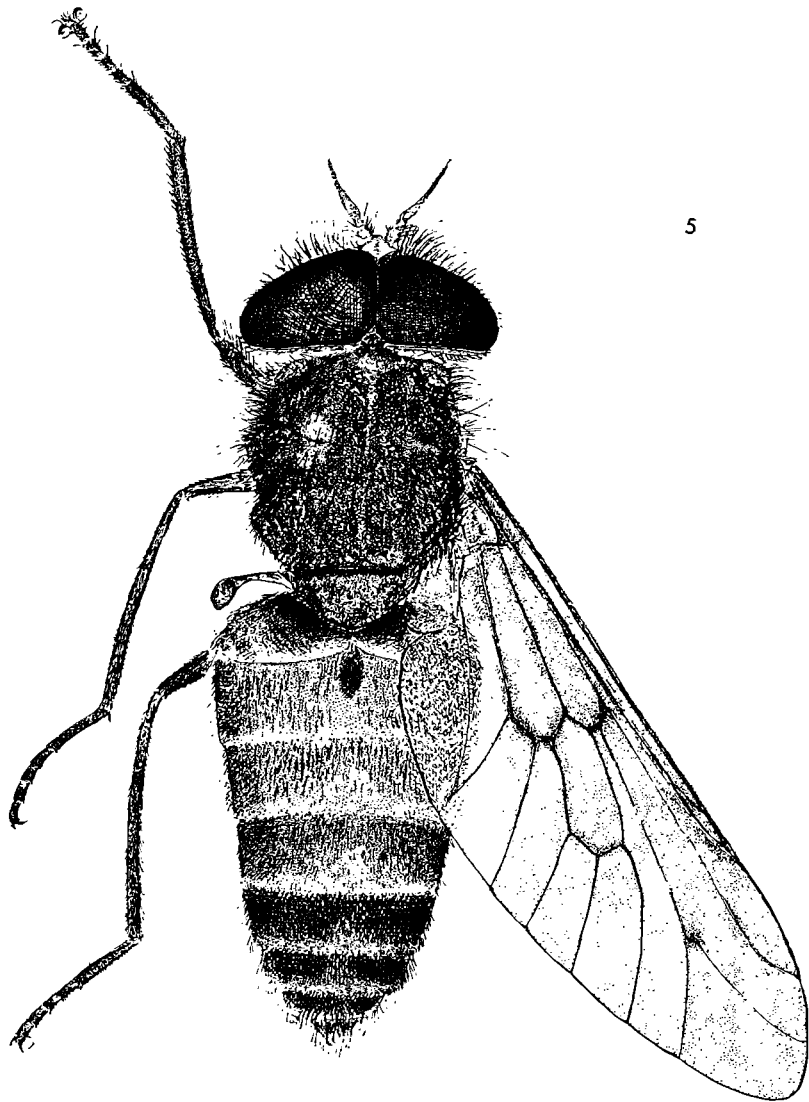


Fig. 5. *Cydistomyia (Amanella) zimbiti* n. sp. Paratype ♂.

towards tip. First and second tergites noticeably paler laterally in large irregular approximately circular patches which meet hind margins, and are covered by a pearly, pinkish-grey tomentum and short shining pale hairs. On tergites 2-6 there are subovate or subtriangular median marks covered by yellowish-bronze tomentum and yellow shining short hairs; hairs on very narrow hind margins are pale. Tergites 3-6 have small lateral pale triangles with pale hairs. Hairs elsewhere short and black. Seventh tergite with mostly pale hairs around edges and dark hairs internally. Sternites yellow-brown with thin yellow-

ish tomentum and very narrow yellowish hind margins, indistinct blackish areas laterally from the fourth tergite to darkened tip. Hairs short and pale except on terminal segments where they are erect, long and black but pale on the hind margin.

Male (fig. 5)

Head. Eyes dark brown in dried specimen, in life without bands and the sheen on them yellower, almost khaki as opposed to the distinctly green sheen of the female. Ocellar tubercle grey, conspicuous, with three well-developed, black-ringed ocelli, sparse fringe of black erect hairs on hind margin. Eyes contiguous except at lower margin where frons is dark brown with some grey-brown tomentum and some bristly black hairs. Subcallus slightly inflated but covered with tomentum, brown medially shading to greyish laterally, a patch of stiff black hairs on upper area. Parafacials and buccae inflated, dark grey, the ground colour shining through grey-brown tomentum. Hairs mostly long, very dark brown; there is a line of long pale hairs from beneath tentorial pits to lower buccae, which mostly curve in across the face. Face similar in colour with thicker tomentum and only a few shorter dark hairs. Postoccipital fringe long, erect, sparse, hairs dark. *Palpi:* first segment swollen, very dark, blackish ground colour showing through sparse grey tomentum, hairs mostly long and dark but there are a few long pale ones basally. Second segment quite slender and elongate, reaching tip of proboscis, similar in colour to first but with grey tomentum a little thicker. Hairs mostly long, bristly, dark, but there are a few shorter dark ones at tip and below. Proboscis velvety black.

Thorax. Mesonotum much the same as in female, both in colour and pattern, but sub-lateral stripes, although not to be described as distinct, are continuous from front to back and an indistinct median stripe is present. Hairs much more numerous, long and dark as well as short and shining yellow-white. Scutellum dark brown with sparse grey tomentum, not yellowed, with long upstanding black hairs and short pale ones. Thorax much more hairy than in female. Pleura dark grey, the very dark ground colour shows through thin ashy grey and brown tomentum. Hairs long, mostly dark brown, shorter and pale anteriorly on mesopleuron and long pale ones on hypopleuron.

Legs. Much darker than in female. Fore coxae shining black with some thin tomentum, hairs long, black, some very long pale ones on the upper surface. Mid and hind coxae dark grey with thicker tomentum and long dark hairs. Femora very dark black-brown, mid femur somewhat lighter than other two, slightly yellowish. Hairs mostly short and dark, but some sparse very long dark ones, fore femora more hairy than others. Tibiae a little lighter, but still blackish-brown. Tarsi similar in colour to tibia, segments darkened apically, most strongly on fore tarsi, claws black, pulvilli dark brown.

Wings darker than those of females, smoky with colour heaviest from coastal border including first basal cell across to R_{4+5} with a clear streak in the cell above. The cross-veins are clouded but there is no staining along the veins. Haltere, stalk yellowish-brown basally, shading to dark brown below knob, knob dark brown.

Abdomen. First tergite dark around scutellum, laterally light brownish-yellow hind margin yellow-white, hairs long black, pale shining yellow-white across hind margin. Second tergite light brownish-yellow with black-brown median mark which is oval and extends from the anterior margin without reaching hind margin. Hairs yellowish, shining

along broad yellow-white hind margin and in area of median triangle although there is no pattern in ground colour or tomentum, elsewhere black. Third tergite similar but without median mark. Fourth tergite darker with the same distribution of dark and pale hairs. Remainder of tergites darker, almost black, still with pale hairs along the hind margins, and, except for terminal tergite, with a median triangle of pale hairs. Terminalia very dark, almost black, with black hairs. First three sternites pale, brownish-yellow with rather long black hairs, and short pale shining yellow ones across hind margin. Third sternite darker with similar hairs. Remaining sternites almost black with black hairs and short shining yellow ones on hind margins.

Measurements. Female—length with antennae 14–15 mm, wings 11.5–12.5 mm. Male—length with antennae 11 mm, wings 9 mm.

Holotype ♀, allotype ♂, 4 paratype ♀♀ in Natal Museum, coll. P. J. and B. R. Stuckenberg. Zimbiti Forest, 7 miles north-east of Kranskop, Natal; November 1967.

Notes. Except for its size, this species has no really exceptional features, and its name is that of the small stream-side forest in which the species occurs. All specimens were caught in the forest, most of them by the stream where they were quite common and persistent in their determination to bite human legs. Despite numerous visits to this beautiful forest remnant, we have never seen the species before, presumably because of a limited flying period. The forest is very narrow and now only a few hundred yards long, occupying a steep, stony gully with a small stream which is a headwater branch of a minor tributary of the Tugela River.

My husband found the male on a leaf of a tree overhanging a marshy part of the stream.

***Cydistomyia (Amanella) shaka* n. sp.**

This, the smallest known South African species of *Amanella*, is dusty black in appearance, with some shining pale hairs. It is without a pattern except for indistinct median triangles of pale hairs (not tomentum). The legs are mainly black-brown but the tibiae are pale greyish-yellow with dark tips. The frons is covered with brown tomentum which may look a little silvery depending on the angle of lighting. The calli are shining black. The third antennal segment is dark brownish-orange, almost diamond-shaped and short for this subgenus, contrasting in colour with the dark terminal segments. The palpi are very long and slender with black hairs.

The affinities of this species would appear to lie with *emergens* Oldroyd in the south and *imbecilla* (Karsch) in the north. In Oldroyd's key to *Amanella* species (1954: 75), which was drawn up before *emergens* was described, *shaka* will not run down. In my key to the subgenus *Amanella* (Usher, 1965: 85) *shaka* comes out at *emergens*; it has all the requisite key characters, besides which it fits the description given by Oldroyd (1957: 472) remarkably well. However a comparison of the two species reveals a number of differences, the most striking being the larger size of *emergens*, while microscopically the longer third antennal segment and stouter palpi are probably the most obvious definitive characters. Although *imbecilla* specimens described by Oldroyd have orange extensively at the base of the abdomen, there is a series in the Natal Museum from the Vumba Mountains in Rhodesia which

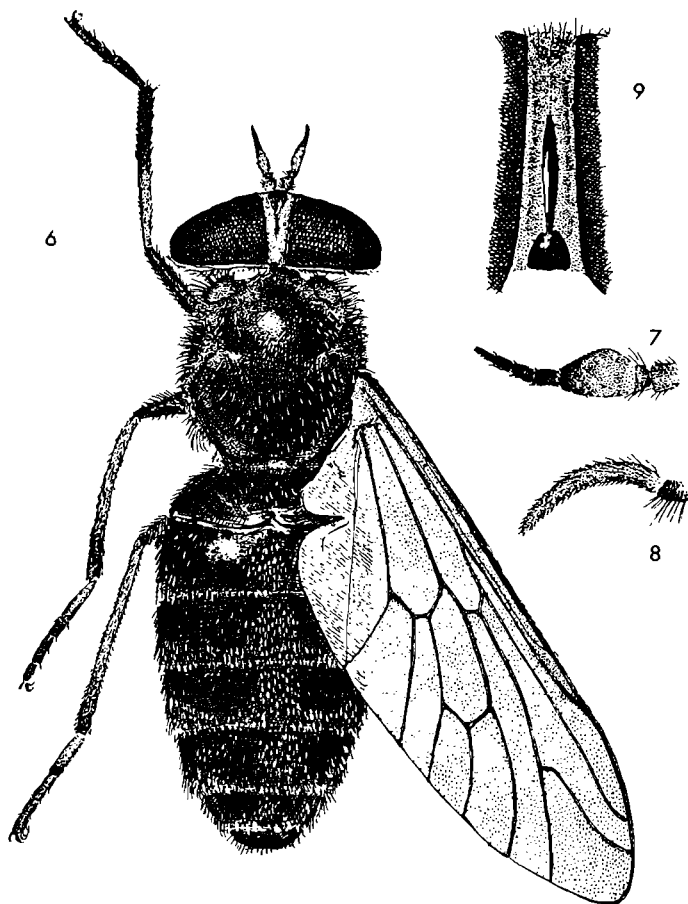
includes a few with so little orange colour that they appear almost totally grey. Characters which separate this species with its wide colour range from *shaka* are: the almost square, yellow-brown or red-brown (definitely not jet black) lower callus which reaches the eye margins, the longer third antennal segment, the red-brown rather than black-brown femora, and the pale hind margins to the tergites which also have less conspicuous pale hairs in median triangles. The shape and colour of the palpi of *imbecilla* vary a lot, but I have seen none so narrow as those of *shaka*. The size of *imbecilla* is also variable and some dark specimens from the Vumba Mountains are even smaller than *shaka*. It will be interesting to see whether *shaka* also has colour variations. Specimens of *imbecilla* have been taken from open grassland but they are also known from forest.

A. shaka tried to bite my husband in bright sunlight on a very hot November day, well away from forest, on a steep slope with a montane grass cover, at Pateni Tea Estates, Richmond, Natal. This is a highland area much intersected by tributaries of the Umkomaas River, and there is extensive natural forest in the region. The known Natal species of *Amanella* always appear to be associated with trees. I have been bitten by *medialis* Oldroyd in grassland with scattered trees on an overcast evening after sundown, but I have not observed any specimens attacking in open grassland. The habits of the other species are even less well known, but so far they are recorded only from within forests.

In life the eyes of this species are green. The flight was rather slow, possibly on account of the very hot humid day. The specimen is in good condition considering the many miles it travelled in a gardening glove for want of a suitable container. A few hairs are missing, but the tomentum is almost complete, and only the shape of the abdomen gives an indication of the unconventional method of capture. Unfortunately, no further members of the species were forthcoming on this or a subsequent expedition.

Female (fig. 6)

Head. Eyes, in life bright peacock green, black-brown in dried specimen, with pale, yellowish-white hairs, short and rather sparse. Frons (fig. 9) narrow, slightly divergent towards antennae. Tomentum silvery or bronze depending on the angle of lighting. Hairs black, fairly long, nearly erect but curled at tips. Ocellar tubercle raised, black ground colour appearing through tomentum (which may be due to rubbing), ocelli not apparent. Calli shining but with roughened surface, black lower callus subtriangular as in fig. 9, with slight median depression, upper callus elongate lanceolate. Lower callus slightly swollen, cleft medially, tomentum thin greyish with black ground colour showing through. On the most prominent part each side of the median line is a bare black spot which may be due to rubbing. Buccae covered by grey tomentum, yellowed around eye margins; hairs black, short in upper angles, becoming long on lower buccae; face also with grey tomentum tinged with yellow especially on lower edges above palpi. Hairs mostly black, almost erect, but there are some pale, semi-recumbent ones most numerous centrally. Postoccipital fringe short, pale, shining. *Antennae* (fig. 7): First two segments black with sparse yellowish grey tomentum and black hairs; first segment rather short, only slightly narrowed at base, second segment small with long anterior dorsal hairs. Third segment short and broad, with pronounced dorsal angle, yellowish-orange narrowly at base, remainder mostly dark burnt orange but sooty just at tip. Terminal segments black. There is a light metallic pruinescence over 3rd and terminal segments. *Palpi* (fig. 8): First segment small with blackish ground



Figs. 6-9. *Cydistomyia (Amanella) shaka* n. sp. Holotype ♀; (6) in dorsal view; (7) antenna; (8) palp; (9) frons.

colour showing through greyish tomentum, hairs long, stiff and black. Second segment very long and thin, pale yellow becoming darkened at apex, hairs quite long, stiff, black apically most numerous but shorter. Proboscis black-brown.

Thorax without any true pattern, blackish-brown, with very fine bloom of dusty brownish tomentum. There is some bluish-white tomentum around edges, especially anteriorly and on rudiments of sublateral stripes before transverse suture. Above wing bases integument is yellowed. Hairs shining pale yellow, sparse over most of mesonotum but numerous on humeral and notopleural lobes and on postalar callus, but lower part of notopleural lobe has stiff, erect, long black hairs. Scutellum similarly coloured, black-brown, with dusty bloom and sparse yellow hairs which are longest posteriorly. Pleurites black-brown with fine grey tomentum, and mostly long rather fine black hairs but a tuft of long pale ones on each of meso-, ptero- and meta-pleuron.

Wings very slightly smoky, stigma not conspicuous, pale yellowish-brown. Veins yellow basally, darkened apically, black hairs along costa, subcosta and R_1 below. Halteres, stalk light yellow-brown, knob dark brown, lighter on outer edge but both are collapsed in holotype.

Legs. Fore coxae like pleura, but with thick tomentum anteriorly and longer black hairs. Second coxae mostly black-brown with very little grey tomentum. Third coxae like pleura. First femora deep black-brown, virtually black in fresh specimen, shining with long black hairs. Second slightly more reddish, still very dark and shining but with greyish dusting of tomentum basally, hairs mostly long and black but some long, more slender, pale; third femora similar but with still more dusty tomentum and also with admixture of black and pale hairs. Fore tibiae basally testaceous yellow with short pale hairs, darkening gradually with addition of dark hairs and apical third brown with close fitting black hairs. Second and third tibiae with similar gradation of colour, not so extensively darkened apically nor so dark in colour. First tarsi black, only slightly reddish basally on first segment, hairs black. The first segment of middle and hind tarsi yellowish basally, terminal segments black, hairs bright copper below, black elsewhere. Claws black, pulvilli brown with velvety grey pruinescence.

Abdomen appearing black macroscopically. Microscopically it is very dark sepia-brown, darkest apically, shining, with only thin dusty tomentum. Hairs shining yellow in median triangles on tergites 2–6, on lateral angles on all but 7th tergites and along all hind margins, elsewhere hairs short and black. These hairs form an indefinite pattern microscopically, but as there is no underlying tomentum the general appearance of the fly is unpatterned. The pale hairs become gradually coppery coloured progressively towards apex. Sternites dark sepia brown, shining with a little dusty tomentum, hind margins only very slightly paler, very narrow. Hairs short, thick, recumbent, black.

Measurements. Length with antennae 9.2 mm. Wing 6.8 mm. Frons 6 : 1.5.

Holotype ♀, unique, in Natal Museum, coll. B. R. Stuckenberg, Pateni Tea Estates, Richmond District, Natal; November 1968.

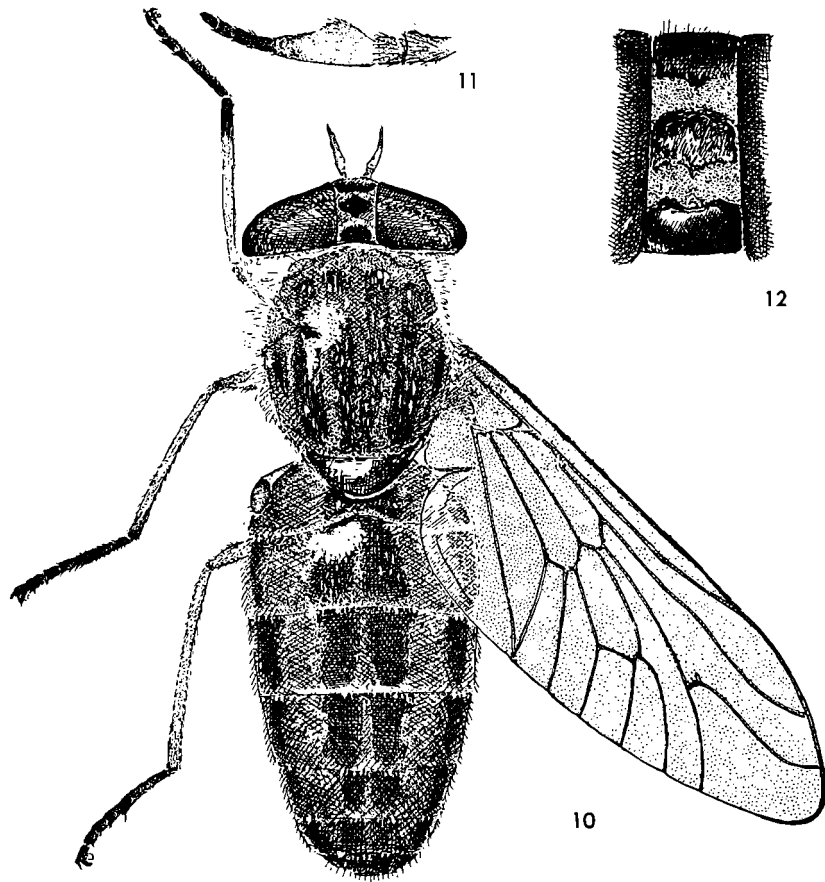
Notes. This fly has in common with Shaka, the Zulu king, only the dark colouring and country of origin. I chose it partly because it was a name which is unlikely to be pre-occupied in so large and widely distributed a genus.

In the time which has elapsed from the capture of the specimen to the preparation of this description, the black colouring has already started to fade to brown. An old specimen may well be entirely brown and therefore difficult to identify if the possibility of fading is not considered.

Genus *Tabanus* Linnaeus
Tabanus minuscularius Austen

Tabanus minuscularius Austen, 1912, *Ann. Mag. nat. Hist.* (8) 9: 31; Surcouf, 1922, *Voy. Maurice de Rothschild*: 965; Oldroyd, 1954, *Horseflies Ethiop. Reg.* 2: 181; Dias, 1966, *Tabanideos de Mocambique*: 540.

There is no way of knowing how much the colour pattern of tabanid material has faded. All specimens of *T. minuscularius* Austen which I have seen, from a variety of sources, have given the impression of a small, rather narrow, dark grey species with the



Figs. 10-12. *Tabanus minuscularius* Austen. Female from Richmond District, Natal. (10) in dorsal view; (11) antenna; (12) frons.

pattern indistinct or at least inconspicuous. When my husband brought several small, rather robust, generally black and white tabanids back from Pateni Tea Estates near Richmond, Natal, the idea that these might be *minuscularius* did not at first occur to me.

In general appearance (fig. 10) these fall between *minuscularius* and *taeniatus* Macquart, more robust and brightly coloured than the former, and smaller and less rotund than the latter, with an inconspicuous but definite median abdominal stripe. However I have been unable to separate the specimens from *minuscularius*, either by direct comparison with specimens from Zululand or from Oldroyd's (1954: 181) description. The differences in appearance are of degree and not easily definable. I have come to the conclusion that these Pateni specimens must fall within the boundaries of the species as it is at present defined, though a biometrical analysis of adequate samples when these become available might lead to the opposite conclusion. The locality is so much further south than any previous record (others are all north of the Tugela River) that possibly the population has existed for some time in isolation.

The Pateni series shows numerous variations. The frons (fig. 12) has three black bands, namely the upper and lower calli and vertical patch, separated by two bands of ashy-grey tomentum. The upper and lower calli may be linked or clearly separated, and the upper margin of the upper callus may be smoothly convex or irregular. Probably rubbing is responsible for the extensive dark areas. Another curious variation is the presence, absence or partial development of an appendix to R_4 . A few specimens have a well-formed appendix on one wing and no trace on the other. In his description of *minuscularius* Oldroyd specifically states 'No appendix to R_4 '.

Measurements. Length 9–10 mm; wing length 7–7.5 mm. Frons slightly divergent towards antennae, frons index 2.0–2.4 (2.3 recorded by Oldroyd).

Material examined. A series of females from Pateni Tea Estates, Richmond District, Natal; collected in November 1968 by B. R. Stuckenberg.

Notes. Twice during November 1968, on hot sunny days, my husband visited Pateni and found these flies to be numerous and biting freely in small clumps of trees and bushes scattered on a steep, otherwise grassy hillside. He found a few flying along a stream bed in a forest, but none in the dense shade of the forest itself.

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